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PATENT, TRADEMARK, COPYRIGHT
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To: Examiner Devon C. Kramer

From: Gregory J. Lunn

Group Unit No. 3683
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Re: Our File: EPH-27
US Application Serial No.
10/057,474
Filed January 25, 2002
METHOD TO IMPROVE
ADHESION BETWEEN PRE-
CURED ELASTOMER AND METAL
SURFACE
Bruce Christenson et al.

Fax: 703-872-9306

Pages: 15 (including cover sheet)

MESSAGE/COMMENTS

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Atty. Docket No. EPH-27D

PATENT

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January 18, 2005

Cynthia P. Scanlon
Cynthia P. Scanlon

January 18, 2005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Bruce Christenson et al. Art Unit: 3683
Serial No. : 10/057,474 Examiner: Devon C. Kramer
Filed : January 25, 2002 Confirmation No.: 5043
For : METHOD TO IMPROVE ADHESION BETWEEN PRE-CURED
ELASTOMER AND METAL SURFACE

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Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

*Via Facsimile***TRANSMITTAL OF APPEAL BRIEF**

1. Transmitted herewith is the APPEAL BRIEF in this application, with respect to the Notice of Appeal filed on October 29, 2004.

2. STATUS OF APPLICANT

This application is on behalf of:

- ☒ Other than a Small Entity
☐ Small Entity status of this application under 37 CFR 1.9 and 1.27 has been established by a verified statement previously submitted.
☐ Enclosed is a verified statement to establish Small Entity status

3. FEE FOR FILING APPEAL BRIEF

Pursuant to 37 CFR 1.17(f), the fee for filing the Appeal Brief is:

- ☐ Small Entity (\$250.00)
☒ Large Entity (\$500.00)

Appeal Brief Fee Due \$ 500.00.

4. EXTENSION OF TERM

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136 apply. Complete (a) or (b) as applicable.

- (a) X Applicant petitions for an extension of time under 37 CFR 1.136 for the total number of months checked below:

Extension (months)	Fee for other than <u>small entity</u>	Fee for <u>small entity</u>
<u>X</u> one month	\$ 120.00	\$ 60.00
— two months	\$ 450.00	\$ 225.00
— three months	\$1,020.00	\$ 510.00
— four months	\$1,590.00	\$ 795.00
— five months	\$2,160.00	\$1,080.00

Extension fee due with this request \$ 120.00.

If an additional extension of time is required, please consider this a petition therefor. (Check and complete the next item, if applicable)

— An extension for _____ months has already been secured and the fee paid thereof of \$_____ is deducted from the total fee due for the total months of extension now requested. Extension fee due with this request \$_____.

OR

- (b) _____ Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition for extension of time.

5. TOTAL FEE DUE

The total fee due is:

Appeal Brief Fee of \$ 500.00.

Extension Fee (if any) \$ 120.00.

TOTAL FEE DUE \$ 500.00 and \$ 120.00.

6. FEE PAYMENT AND FEE DEFICIENCY

X Please charge deposit account no. 23-3000 the amounts of \$ 500.00 and \$ 120.00 for the Appeal Brief Fee and Extension Fee, respectively.

X The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 23-3000.

Respectfully submitted,



Gregory J. Lunn
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January 18, 2005

Cynthia P. Scanio January 18, 2005
Cynthia P. Scanio

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte Christenson et al.

Appeal No. _____

Serial No.: 10/057,474
Filed: January 25, 2002
Group Art Unit: 3683
Examiner: Devon C. Kramer
Applicant: Bruce Christenson and Gary Veselica
Title: METHOD TO IMPROVE ADHESION BETWEEN PRE-CURED ELASTOMER AND METAL SURFACE

Cincinnati, Ohio 45202

January 18, 2005

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BRIEF ON APPEAL

This brief is in furtherance of Applicant's Notice of Appeal filed October 29, 2004, appealing the decision of the Examiner dated June 30, 2004, and the Advisory Action mailed August 26, 2004, finally rejecting claims 6, 7, 9 and 10. A copy of the claims appears in Appendix 1 to this brief. A request for a one-month extension of time is included in the Transmittal form.

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I. Real Party in Interest

The real party in interest is EaglePicher Industries, Inc.

II. Related Appeals and Interferences

There are no related appeals or interferences known to the Appellants or the Appellants' legal representative which will directly effect, or be directly effected by, or have a bearing on the decision of the Board in the present appeal.

III. Status of Claims

Claims 6, 7, 9 and 10 are pending in this application. Claims 1-5 have been canceled, as well as claim 8, and claims 11-13. and are subject to this appeal. Claims 6-7 and 9-10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Fishbaugh, et al., U.S. Patent No. 4,073,047 in view of Kingsley, U.S. Patent No. 6,082,721 and further in view of Gaydecki, U.S. Patent No. 3,858,925 and Ando, et al., U.S. Patent No. 5,578,680.

IV. Status of Amendments

There are no amendments pending after final in this application.

V. Summary of Claimed Subject Matter

The present invention is a vibration dampener which includes a metal hub and a metal weight surrounding said metal hub, with a pre-cured elastomeric ring or member compression fitted between the outer metal weight and the inner metal hub. The surfaces of the inner metal hub and the outer metal weight which contact the elastomeric member are phosphate coated. The elastomeric member is a pre-cured elastomeric member. In other words, it is not injected as a liquid and cured *in situ*. It is either ethylene propylene diene monomer rubber, or ethyleneacrolate copolymer.

It has been found that the adhesion between the pre-cured elastomeric member and the metal surfaces of the weight and the hub improves with age because of this phosphate treatment. Other elastomeric members such as SBR rubber and nitrile rubber, which, although they initially have good adhesion, lose that improved adhesion over time. Although it is known that phosphate treatment improves the adhesion between metal and rubber wherein the rubber is cured in contact with the phosphate coated surface, applicants' invention is the use of a pre-cured elastomeric member compression fitted between two phosphate coated metallic surfaces. Applicants have further provided the Declaration of one of the inventors, Gary Veselica, to establish this. The Declaration is attached hereto as Appendix 2. This was submitted with applicant's response in this case on May 11, 2004, and in the parent application (which is now U.S. Patent No. 6,358,349) as part of the amendment dated April 2, 2001.

VI. Grounds of Rejection to be Reviewed on Appeal

The only ground of rejection for review is whether claims 6, 7, 9 and 10 are obvious under 35 U.S.C. § 103(a) over Fishbaugh, et al., in view of Kingsley, and further in view of Gaydecki or Ando, et al.

VII. Argument

A. The Rejections of Claims 6, 7, 9 and 10 under 35 U.S.C. §103(a)

Claim 6, the only independent claim in this application, recites a vibration dampener comprising a metal weight, a pre-cured elastomeric member, and a metal hub adapted to attach to an automotive engine wherein the metal weight and the metal hub have a phosphate coated surface and wherein said elastomeric member is compression fitted between said metal weight and said metal hub contacting said phosphate metal surfaces wherein said elastomeric member is selected from the group consisting of ethylene propylene diene monomer rubber and ethylene acrylate copolymer.

Claim 7 simply specifies the metal surfaces. Claim 9 is limited to a pre-cured elastomeric member formed from ethylene acrylate. Claim 10 sets forth the elastomeric member as ethylene propylene diene monomer rubber, or EPDM.

As set forth in attached Appendix 2, applicants have established that the phosphate coating on the metal surfaces improves the adhesion over time at elevated temperature between the pre-cured elastomeric member and either ethylene propylene diene monomer or ethyleneacrylate copolymer, which is also referred to under the trade name Vamac. Applicants' claims are limited to two particular elastomeric materials, pre-cured ethylene

propylene diene monomer rubber and pre-cured ethyleneacrylate copolymer. As shown by the Declaration, attached as Appendix 2, these two elastomeric materials show improved heat aging. Other rubbers such as SBR and nitrile rubber frequently used in automotive applications, deteriorate under high temperature over time.

The primary reference, Fishbaugh, et al., does teach a vibration dampener that has a metal weight, a pre-cured elastomeric member and a metal hub adapted to attach to an automotive engine. The elastomeric member is compression fitted between the metal weight and the metal hub. There is no disclosure whatsoever in Fishbaugh as to the use of a phosphate coated surface.

The rejection relies on the teaching of Kingsley which, the Examiner maintains, teaches a phosphate coated member 21 interference fit with an elastomer, referring to column 8, lines 55-68. Gaydecki is cited to teach the use of ethylene propylene diene monomer rubber. Again, there is no disclosure of contacting this with a phosphated surface. Ando teaches the use of ethyleneacrylate as a dampening elastomer member. Again, there is no disclosure in Ando of contacting this with a phosphate coated metal surface.

It is applicants' position that the rejection is based on a misinterpretation and, further, an improper combination of the disclosures in these references to arrive at the rejection under 35 U.S.C. § 103(a).

The Kingsley reference fails to disclose a pre-cured elastomeric member that is compression fitted against a phosphated surface. In particular, the Kingsley reference, at column 7, line 63, to column 8, line 9, indicates that the elastomeric member is injection molded as a liquid and cured against the phosphated surface. The inner metal member 22

is compression fitted, but there is no disclosure whatsoever of phosphating this inner bushing member. In fact, at column 8, line 38, it indicates that relative rotational and/or conical movement between the elastomer interface and the inner bushing member is permitted. Thus, this reference is actually teaching away from applicants' invention.

The first problem with the Kingsley reference is that it does not disclose contacting a pre-cured elastomeric member with a phosphate coating on a metal surface. Kingsley discloses phosphate coating one of two surfaces, and then injecting uncured polyurethane resin which is subsequently cured. It is logical that as an elastomeric member cures, phosphating would improve the adhesion between the surfaces. However, applicants' invention is a compression fitted pre-cured elastomeric member in a vibration dampener. Although it is known that the phosphating improves the adhesion when one cures the rubber next to the phosphated surface, it is not logical to conclude that this same result would occur with a pre-cured compression fitted elastomeric member. During the curing process, there can be a reaction between the polymer and the phosphated surface. Further, as the uncured elastomer is in a liquid state, it has the ability to flow and subsequently cure in more intimate contact with the phosphated surface. However, that logic does not extend to a pre-cured elastomer. As the elastomer is already cured, there should be no reaction. As the elastomer is already a solid, that intimate contact cannot be achieved.

The second problem with the Kingsley reference is that it discloses phosphating only the outer member which, again, is not contacted with a pre-cured elastomer, it does not disclose phosphating the inner bushing member.

It is therefore, applicants' position that the cited prior art fails to disclose each of the elements of applicants' invention. Accordingly, the Examiner's rejection of these claims is improper.

Further, it is applicants' position that there is no suggestion in these references to combine their teachings, and certainly no suggestion of the unexpected advantages achieved when the compression fitted pre-cured elastomeric member is either ethylene propylene diene monomer rubber, or ethyleneacrylate copolymer.

As previously mentioned, the logic for phosphating the surface in Kingsley does not apply to phosphating the surface in Fishbaugh.

The bottom line is, one skilled in the art cannot look to the Kingsley reference to provide the information necessary to modify the disclosure in Fishbaugh to arrive at applicants' invention. Certainly, there is no suggestion to make this modification of Fishbaugh, and, further, there is no suggestion whatsoever of the unexpected advantages that are achieved by applicants' invention. In light of this applicants would request that the Examiner's rejection of claims 6, 7, 9 and 10 be reversed.

Respectfully submitted,

WOOD, HERRON & EVANS, L.L.P.

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APPENDIX 1**CLAIMS**

6. (Previously presented) A vibration dampener comprising a metal weight, a pre-cured elastomeric member and a metal hub adapted to attach to an automotive engine wherein said metal weight and said metal hub have a phosphate-coated surface and wherein said elastomeric member is compression fitted between said metal weight and said metal hub contacting said phosphate metal surfaces wherein said elastomeric member is selected from the group consisting of ethylene propylene diene monomer rubber and ethylene acrylate copolymer.
7. (Original) The vibration dampener claimed in claim 6 wherein said weight is an annular ring and wherein said phosphate coated surface is an inner annular surface of said annular ring and wherein said metal part is a hub and said phosphate coated surface of said metal part is an outer annular surface of said hub.
9. (Previously presented) The vibration dampener claimed in claim 7 wherein said elastomeric member is an ethylene acrylate.
10. (Previously presented) The dampener claimed in claim 7 wherein said elastomeric member is EPDM.

APPENDIX 2

DECLARATION OF GARY VESELICA

(See following 2 pages)

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